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# THE AGRICULTURAL STUDENT.

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### EDITORIAL CHAT.

The Supervisors of Census for the State of Ohio have already been appointed, and the selection of the large army of necessary assistants, clerks and numerators will rapidly follow. The actual census of agriculture will begin on June 1, 1900, but will be of crops, products, fruits, etc., of the calendar year 1899 only.

Farmers who keep no record of their business are very liable to forget the items which the census enumerators are required by law to gather. If they do, these forgotten items will never appear in the census reports, and the business of the community for which they are missing will compare less favorably than it should with that of those which give fuller returns. In order to secure accuracy and fullness in the reports, an effort is being made to induce all farmers and producers to begin at once to prepare written accounts showing the acreage, quantity and value of each crop raised by them in 1899, and the acreage and value of all their farm products for 1899. The success or failure of this or any other plan will, however, be largely due to the local interest in the various districts and sub-districts. Let Granges and various Agricultural Societies take up the discussion of this subject; speak

of it frequently in your conversations with friends and neighbors; see that the local newspaper and other publications read by farmers keep the subject fresh in the minds of the people.

The census office will gladly furnish any information desired, and if you can suggest any other practical method of reaching the people for the purposes indicated be kind enough to do so.

The classes in Agriculture have been supplied with free copies of the second edition of "Outlines of the Advanced Registry System of the Holstein-Friesian Association of America," prepared especially for students in Agricultural Schools.

The book contains chapters on how animals are qualified for entry, rules for official butter records competing for prizes, rules for determining the net value of products over value of food consumed, instructions for scaling, measuring and describing animals, scale of points employed in judging Holstein-Friesian cattle, and a glossary defining the terms used. The association is desirous that descriptions and measurements should appear in all entries of advanced registry, and this edition is a direct appeal to the Agricultural Colleges to thoroughly qualify men for describing, measuring and scaling animals of all breeds.

This commendable action of one of the leading breeders' associations in America is only another indication of the fact that all eyes are turning more and more toward the Agricultural schools for experts and leaders in all lines of agricultural work. The field in which the graduate from Agricultural colleges may make himself useful to the world and find lucrative employment is constantly widening, and the time is rapidly coming when the names farmer, horticulturalist, breeder, etc., will carry with them the thought of an educated man just as the names lawyer, doctor and minister do at the present day.

The Grangers have come and gone, but the end is not yet. Many were the expressions of surprise at the extent and completeness of the facilities for thorough instruction at the University in every line, and especially so in the Agricultural Department, in which our visitors were most interested. The building of chief attraction (after the Gymnasium in which lunch was served) was Townshend Hall, the home of the Agricultural Department of the University, the center around which clusters the Agricultural interests of the entire State, and attracting attention all over the United States. Many were the questions asked regarding the course in Domestic Science also, for the education of the farmers' daughter is just as important as the education of his sons. It would indeed be hard to gather together 600 people more enthusiastic and more interested in higher education, for the vast majority of the students in our colleges have, and will in the future, come from farm homes. This visit to the University of so large a number of intelligent farmers can result only in a wider appreciation of the fact that the University is a place where they can send their children without fear of them being educated away from the farm.

This issue of the STUDENT is devoted especially to our recent visitors, and matters in which they will be especially interested. We wish to thank those of them who were interested enough in our efforts to leave their address for a copy of this issue, and we trust our relations so pleasantly begun will be continued. In its present form, however, we cannot afford to continue the STUDENT free of charge, so if you wish to keep in touch with the college, send in your subscription. It will be courtesy at least to return the accompanying envelop with a short letter addressed to us, and while you are doing this just slip in only TWENTY-FIVE CENTS to pay your subscription for the STUDENT for the remainder of the year.

#### **News Items.**

Among the officers of the Association of American Agricultural Colleges and Experiment Stations we notice the names of the following from Ohio: Member of Executive Committee, Alexis Cope; member of Committee on Methods of Teaching Agriculture, Professor T. F. Hunt; member of Committee on Seed Testing, Professor W. R. Lazenby. As to number of officers Ohio is second to no state, and equaled only by New York. We take it that this is some indication of the important place Ohio is taking in agricultural education and it is also significant that all these men are from the University.

The sixth annual session of the winter term course in dairying will begin on Wednesday, January 3, under the direction of Professor Decker, assisted by Mr. B. B. Herrick, Mr. Elisha Smith and Mr. D. A. Crouner.

The Asparagus Club held its regular meeting Tuesday evening, November 21.



H. A. Clark presented the current news of the week, followed by a paper on "Fruit on the Farm," by O. E. Jennings. This was followed by the usual "round table" discussion, which is one of the most interesting and beneficial features of the meetings.

The Columbus Horticultural Society held its regular November meeting Saturday afternoon, November 25, at which the following program was given:  
 "Chrysanthemums" .....Albert Knopf  
 President of the Franklin Park Floral Company.

"Trees for Shade and Ornament"....  
 .....Professor W. R. Lazenby  
 "Floral Notes".....F. K. Luke  
 R. and J. Farquhar, of Boston, Mass., presented the Society with a collection of choice bulbs, also with a specimen of their "Gloire de Lorraine" Begonia, which will be kept at the forcing house of the Horticultural Department.

The Journal for the Columbus Horticultural Society for the third quarter has come to hand. It contains many valuable papers and among them we note two by Professor Lazenby, one the "Development of the Buds of Some of Our Common Fruits," and the other "Relation of the Honey Bee to Practical Horticulture." Professor Green, of the Ohio Experimental Station, contributed a paper on plums and several papers are found in the Journal which were read before the Society for the Promotion of Agricultural Science at its meeting held last summer at the University.

### Expert Opinion in Dairy Farming.

Mr. Oscar Erf, Instructor in Dairy-ing at the University of Illinois, has been invited to visit Kearney, Neb., at the expense of Mr. H. D. Watson, who is the proprietor of an 8,000-acre farm,

on which there is to be established a 1,500 cow dairy. This will be the largest dairy plant in America. Mr. Erf is invited to Kearney to look over the conditions and submit complete plans for barns, creamery and other arrangements.—The Farm Home.

### A Visit to Mr. Wood's Stock Farm.

Saturday, November 11, the class in Breeds of Live Stock, accompanied by Professor Hunt and Mr. Ruhlen, visited the stock farm of Mr. W. I. Woods, of Williamsport. Upon the way the party visited Mr. Bentley's creamery at Circleville, and inspected his new method for pasteurizing. The party reached Mr. Woods' place about noon, where they found an elegant dinner awaiting them. After dinner the parlors were thrown open and the time was passed so pleasantly with songs and music that the real object of the visit was almost forgotten. Mr. Woods finally took the class in charge and showed them over his 1800-acre farm and afterwards gave an interesting and instructive talk on the management of such a farm. Upon his farm Mr. Woods has about 450 head of cattle, of which about 100 head are fine thoroughbred short-horns, the remainder being feeders. Mr. Woods' farm is admirably adapted to breeding and feeding purposes, and is a model of its kind. His herd of short-horns are renowned throughout the country. The class scored several of the best cows and heifers in the herd, which made possible a better comparison of the individuals.

Messrs. Renick and "Jack" Dunlap, both former students of O. S. U., accompanied the class.

Mr. Woods proved a royal host. Every member of the party is profuse in his praise, and thank him most heartily for his generous invitation.

### The Ohio State Horticultural Society.

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We have received the program for the thirty-third annual meeting of the State Horticultural Society, to be held at Newark, December 6 to 8. The following is the program in full, subject to change by the Committee on Business:

Wednesday, 10 a. m.—Arrangements of exhibits; renewal of membership, etc.

Wednesday, 1:30 p. m.—Appointment of Committees; President's address; reports of Ad Interim Committees; "Fruit Notes for 1899," Professor W. J. Green, Wooster.

Wednesday, 7 P. M.—Report of Centennial Committee; report of Committee on Vegetable Pathology, Professor A. D. Selby, Wooster, O.; "Dietetic Value of Fruits," Dr. Georgia Merriman, Bucyrus, O.

Thursday, 9 A. M.—Report of Committee on Plant Distribution; report of Committee on Entomology, Professor F. M. Webster, Wooster, O.; report of Committee on San Jose Scale Legislation; "A Classification of the Peach and Some Varieties for Ohio," Homer C. Price, Columbus, O.; discussion by William Wylie, Frazeyburg, O.; general discussion; "Will It Pay the Fruit Grower to Keep Bees?" Professor W. R. Lazenby.

Thursday, 1:30 P. M.—Question box; "The 'Laissez Faire' or Let-Alone Policy, as Applied to the Control of Insect Pests," Professor Webster; "Some Results of the Mechanical and Chemical Analysis of Ohio Soils," Professor Selby; report of Treasurer; report of Secretary; election of officers.

Thursday, 7 P. M.—"Home Beautifying," E. H. Shuey, of National Cash Register Company, Dayton, Ohio, illustrated by stereoptican views; discussion by L. B. Pierce, Tallmadge, and F. E. Carr,

Lakewood; general discussion by the Society.

Friday, 9 A. M.—Question box; "Varieties of Plums and Classification," Professor Green; reports of delegates to American Pomological meeting; "The Orchards of Western New York as Seen by 'The Ohio Man,'" William Miller Gypsum; unfinished business.

The following questions will also be brought up for discussion during the meeting:

"What is the best method of keeping accounts with berry pickers?" W. G. Farnsworth.

"What introductions of small fruits have proven valuable in the last ten or twelve years?" Professor Green.

"What plants should be set in the fall, and how should they be protected?" W. N. Scarff.

"How can the farmer's garden be made more satisfactory?" John D. Im-lay.

"What shall we do to replace our forests?" S. R. Moore.

"Should we encourage the planting of trees along the public highway?" Professor Lazenby.

"Name the best six plums for southern Ohio to afford a succession in ripening?" N. H. Albaugh.

"Name the best early red and best late red grape for market?" E. M. Woodard.

"What is the cause of apples rotting so badly this season?" Professor Selby.

"Is spraying alone sufficient to prevent injury by codling moth?" William Miller.

"Can mushrooms be grown profitably?" Professor Lazenby.

"How can local horticultural societies be made more valuable to the community?" N. Ohmer.

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"An ounce of smooth road is worth a pound of whipping the horse."

### The Grangers.

Six hundred members of the National and State Granges came over to Columbus from Springfield Friday, November 17, on a special train, furnished by the Commercial Club, of that city. The reception given the visitors by the University was a decided success in every particular. A committee from the University, consisting of Professor and Mrs. Lazenby, Mrs. Ray, Prof. Gibbs, Misses Postle, Riley, Murray and Findley, and Messrs. Fippin, Miller and Davis, left Columbus at 7:15 Friday morning and met the special train at London. Copies of The Lantern, O. S. U. buttons, programs and street car tickets were distributed throughout the entire train by members of the committee. The train did not stop at the Union Depot, but went directly to the State Fair grounds, where the party was received by Secretary Miller, of the State Board of Agriculture, and State Master Ellis, of the Ohio Grange. After spending some time in looking over the fair grounds and through some of the buildings, the party again boarded the train and returned to the Union Depot, and from there came directly to the University on special cars furnished by the Columbus Street Railway Company. The visitors went immediately to the Chapel, where a splendid program was rendered, Professor Hunt presiding. After the program, they were escorted to the gymnasium and armory, where lunch was served, the O. S. U. buttons previously distributed on the train being the passport to this feast. The afternoon was spent by the Grangers in visiting the different buildings on the campus and many flattering compliments were paid to the University. All seemed highly pleased, and will doubtless carry home with them a feeling of greater loyalty and love for the Univer-

sity than before they came. The party left for Springfield at 3:30. Nothing had been left undone that could add to the pleasure and comfort of the visitors. Their appreciation of this fact and their impression of the University found expression later in the resolutions adopted by the Ohio State Grange from which we quote the following:

"That we appreciate the splendid work done for the agricultural and horticultural interests of Ohio by our force of efficient workers at the Ohio Experiment Station at Wooster."

"That we have a justifiable pride in the growth and success of our Ohio State University and heartily recommend it to the farmers of Ohio as an educational institution well worthy of their patronage."

The program rendered in the Chapel was as follows:

Prayer—S. O. Bowen, Eastford, Conn.,  
Chaplain of National Grange.

Music—Glee Club.

Address of Welcome—Dr. W. O. Thompson, President Ohio State University.

Response on behalf of National Grange—Aaron Jones, South Bend, Ind., Master of National Grange.

Response on behalf of Ohio State Grange—Seth H. Ellis, Waynesville, O., Master of State Grange.

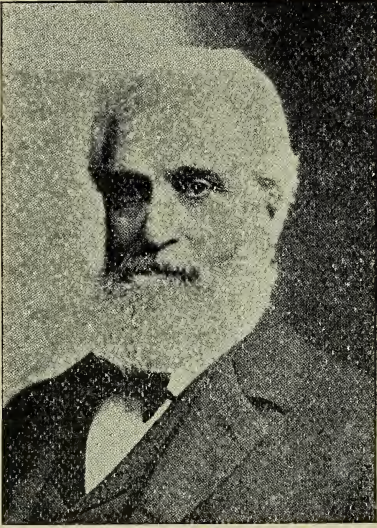
Response on behalf of Visiting State Granges—Professor T. C. Atkeson, Morgantown, W. Va., Master of West Virginia State Grange.

Response on behalf of the Visiting Ladies—Mrs. Sarah G. Beid, Edina Mills, Minn., Pomona National Grange and Master of Minnesota State Grange.

"Co-operation"—R. L. Holman, Springfield, O., Member Executive Committee Ohio State Grange.

"The Grange as an Educational Institution"—Alpha Messer, Rochester, Vt., Lecturer of National Grange.





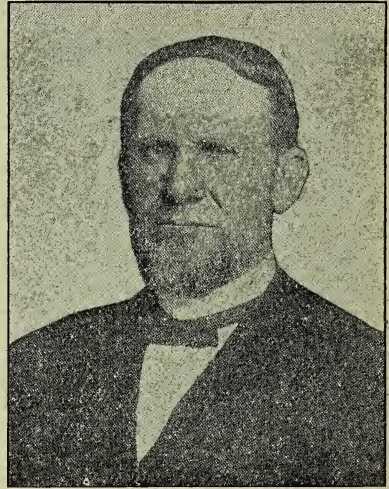
HON. AARON JONES, South Bend, Ind.

## NOTED GRANGERS.

Aaron Jones is a native of Indiana, a practical, active farmer, owning and managing a farm of six hundred acres. He has always been prominently identified with the agricultural interests of his own and other states, and at the present time is a member of the Indiana State Board of Agriculture. He was the organizer of the Northern Indiana and Southern Michigan Agricultural Association, and was its President for a number of years. This is one of the largest and most successful fair associations in the central west. He was one of the principal organizers of the Mutual Fire Insurance Company, which has met with such marked success. He has served as Master of the Indiana State Grange for fourteen years, and has also for several years filled the office of auditor of his county. As Master of the National Grange he has shown himself a prompt and efficient presiding officer and a wise and earnest master, who has the best interests of the order, as well as of each and every member, at heart.

Mr. Jones married early in life, a woman thoroughly in sympathy with his

work. They have one daughter who lives on a farm near her parents.



S. H. ELLIS, Waynesville, Ohio.

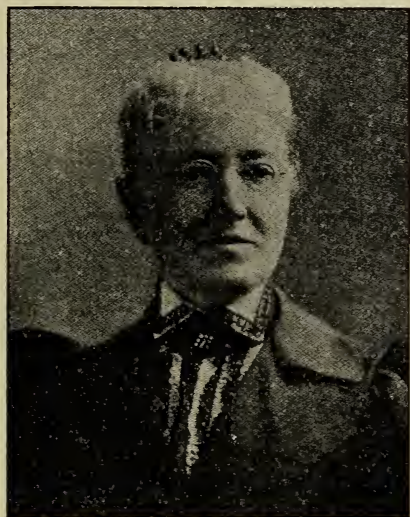
S. H. Ellis requires no introduction to the people of this state. He has been a member of the Board of Control of the Ohio State Agricultural Experiment Station for many years, and is now President of that Board. He is also a member of the Ohio State Board of Agriculture. He was a member of the Board of Trustees of the University for nine years, and in this capacity did very much to build up the Agricultural Department and place it on its present footing. Mr. Ellis is a practical and successful farmer and until last spring, he has always given his farm personal attention. He was elected Master of the Ohio State Grange at its organization in 1873, in which office he was continued for six years. After ten years of service on the Executive Committee he was again elected Master and served six years, and again elected to that position after four intervening years.

Mr. and Mrs. Ellis have seven children, five daughters and two sons—all married except one daughter. One son, Charles, graduated from the College of



Veterinary Medicine in the class of '89, and is now practicing his profession in St. Louis, Mo.

Mrs. Sarah G. Baird was elected Master of Minnesota State Grange in 1895, and has been twice re-elected. She has been remarkably successful in building up the order in her state, the membership having doubled since she was elected. While the Grange has stood from its formation as an advocate of woman's equality, Mrs. Baird is the first woman who has been elected to the high office of State Master.



MRS. SARAH G. BAIRD, Edina Mills, Minn.

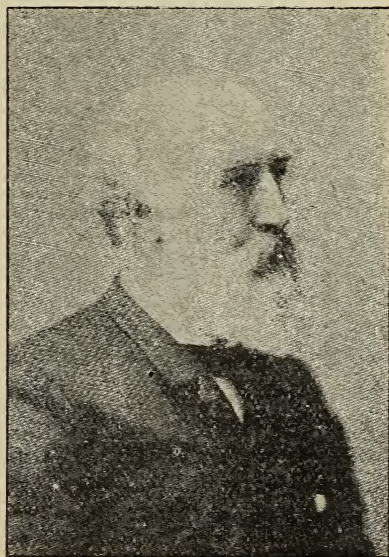
Mr. and Mrs. Baird have a model home and are devoted to each other. They have no children.

Alpha Messer was born in the hills of Vermont. He is an active farmer, and personally oversees the work on his farm. He is an expert in the manufacture of maple sugar, and is Treasurer of the Vermont Maple Sugar Association. He served as Master of the Vermont State Grange for eight years, and in 1893 was elected Lecturer of the National Grange. He has been twice re-elected, making six years of continuous service.



ALPHA MESSER, Rochester, Vt.

Reverend John Trimble is one of the three surviving members of the original seven founders of the Order of Patrons of Husbandry. He is a native of New Jersey, and was educated for the ministry, which work he began in his early manhood. About the time of the civil war he removed to Washington, D. C., where he has since resided. Here he be-



JOHN TRIMBLE.

came interested in the idea of O. H. Kelley for bettering the conditions of the farming class, and thus he became one of the founders of the order. He was appointed Secretary of the National Grange in 1895, which office he still holds.

### **Ohio State University.**

In consideration of the fact that this issue of the STUDENT will perhaps find its way into the hands of many friends of the University who are not familiar with some of the facts concerning its past and present status, it may not be out of place at this time to note a little of its history and what it is and what it is doing today.

The Ohio State University was founded in accordance with the land grant act of Congress passed in 1862. This act states that the leading objects of the College shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts.

With the endowment of the land grant act and the subsequent grant of military lands, the State University was established in 1870 at Columbus, the citizens of Franklin county offering \$300,000 for its location. During the first twenty years of its history the total state appropriations were \$350,000. In 1890 the Morrill act, passed by Congress, granted \$15,000 for the first year and an additional sum of \$1000 each year until \$25,000 was reached. The University now receives \$170,000 annually from the state, making its total income about \$250,000. The University grounds consist of 345 acres, about 110 of which are in the Campus proper, and 235 are devoted to agricultural and horticultural purposes, under the management of the College of Agriculture.

There are now thirteen buildings on

the Campus in which classes meet. During the last three years three new buildings have been erected, i. e., Townshend Hall, at a cost of over \$100,000; Biological Hall, at a cost of \$40,000, and a gymnasium at a cost of \$100,000.

The total value of the lands, buildings and equipments is estimated at over \$2,000,000.

The University is divided into six Colleges as follows: College of Agriculture, College of Arts, Philosophy and Science, College of Engineering, College of Law, College of Pharmacy and College of Veterinary Medicine. Each College is under the direction of its own faculty, which has full control of all matters pertaining to that particular College.

The College of Agriculture offers six distinct courses of study, the four-year courses being courses of higher education in the same sense as any of the classical courses. The course in agriculture consists of about one-third technical agriculture, one-third science and one-third languages, history and economic science. The free scholarship in the two-year course in agriculture has been a considerable factor in the attendance at the College of Agriculture.

The growth of the University within the last ten years has been remarkable. In 1891 there were 38 instructors, and 493 students. In 1896 there were 81 instructors and 968 students, and at the present time there are 94 instructors and 1149 students. In the college of Agriculture in 1891 there were 31 students; in 1896 there were 83, and now there are 122.

These figures certainly show a healthy growth of interest in the work and accomplishments of the Ohio State University.

F. W. T.

"The peril to agriculture is to come more from personal ignorance than from others' competition."



### Professor Isaac P. Roberts.

Professor Roberts was born July 24, 1833, in Seneca County, New York, of parents of Scotch-Welsh origin. He received his education by private instruction given by a cousin in the farm-house during the winter, and in the Seneca Falls Academy. During the summer he worked at carpentering and after teaching one winter he went to La Porte County, Indiana, where he continued to work as a carpenter in the summer and to teach school in winter. He purchased a farm in 1858 and was a farmer and builder until he removed to Mt. Pleasant, Iowa. Here he again engaged in farming, teaching and carpentering until 1869, when he was elected superintendent of the farm of the Iowa Agricultural College. The next year he was made Professor of Agriculture in that institution, and was also elected Secretary of the Board of Trustees. These three offices he held until 1873. During this time he applied himself with great diligence to the study of the sciences relating to agriculture. The result of these years of close application was a temporary breakdown, and he planned to return to the farm, but during 1873 he became identified with Cornell University as Professor of Agriculture and the same year was elected dean of that department. For the next four years his duties were comparatively light, and, with better facilities, he again became a student. A few years later the Iowa Agricultural College gave him the degree of M. Agr.

It has been well said that "To write a history of the Agricultural Department at Cornell University would be equivalent to writing a biography of the last twenty years of Professor Robert's life. That department is Roberts'. He now has competent associates, but his influence runs through it all and dominates

it. He is director of the College of Agriculture and of the Experiment Station. In these positions he is universally loved by professors and students because he makes no pretensions to superior knowledge." During this time he has owned and managed large estates of his own, and has also performed a large amount of literary work. He is the author of "Agricultural Colleges" in the Encyclopedia of Education; "Agriculture," "Reaping Machines" and "Manures," in Johnson's Universal Encyclopedia; also of the books "The Fertility of the Land" and "The Farmstead," the latter now being on the press.

Professor Roberts has held numerous positions of honor and trust in various organizations. He is a Fellow of the American Association for the Advancement of Science, ex-President of the American Association for the Advancement of Agricultural Science, ex-President of the State Agricultural Society, ex-President of the New York State Dairymen's Association, a member of the Board of Trustees of Cornell University and member of the Committee for the Promotion of Agriculture.

### Student Judges.

The question of competent judges in the various departments of live stock exhibits at the County Fairs has always been a difficult and perplexing one for the Board of Managers to solve satisfactorily to all exhibitors. To be sure some exhibitors must be disappointed, but as a rule they are usually a class of men who are willing to show their stock on their merits, and make no complaint when competent and impartial consideration is clearly evidenced by the judges. The instances of partiality or total incompetence on the part of the judges have been so numerous in the past that many people prefer to leave their stock



at home rather than submit it to the judgment of the men usually selected. The result is a lack of interest in the fairs and the Board of Managers are thrown upon the alternative of questionable features or financial failure.

While there has been, doubtless, many cases of evident partiality, we are inclined to believe that incompetence is usually the cause of complaint. The men in the community best fitted for judges are usually interested in the exhibits, and in the effort to obtain unprejudiced judges men are selected who have no idea whatever of the differences in the various types of animals shown, and judge (?) draft and trotting horses, or dairy and beef cattle by the same standard, and that usually a very indefinite one.

Indications now point to the Agricultural Schools as the source from which relief may be expected.

The courses of study in all the Colleges of Agriculture give thorough instructions in judging and scoring all breeds of live stock, and with reference to the special forms and types found in these breeds. As indicated elsewhere in this issue the leading Breeders' Associations are looking toward these schools for competent judges in the future and the managers of fairs must cater to the demands of their patrons if they would be successful. The Board of Managers of one county has settled the question of competent judges satisfactorily to themselves and to their patrons. Last fall, upon request of their Board, Prof. Hunt recommended Mr. C. B. Stewart, a Senior in the course in Agriculture, and in this instance, as well as every other instance of student judges which has come to our notice, entire satisfaction was given. The following from the Buckeye News, of Lithopolis, will speak for itself:

Mr. C. B. Stewart, of the O. S. U., who acted as judge at the Logan Coun-

ty Fair this year, in the cattle department, is receiving great praise at the hands of the Board of Managers of that fair, who write that all patrons are pleased with the experiment of an expert judge in the department, and say they want him again next year.

### **The Winter Course in Dairying.**

This course begins on Wednesday, January 3, and is established to meet the wants of those who have neither the time nor means for the more extended courses. It is designed especially for those who are desirous of mastering the art of butter and cheese making or who wish to become fitted for the position of manager or superintendent of a creamery or cheese factory. Young men who are interested in general live stock farming may get much from this course that will be helpful to them, although if they have the time for it, the fuller courses of the College of Agriculture would be more desirable. The students who have taken the special course in dairying heretofore, have usually been quite successful and the outlook in this line for those who will properly prepare themselves was never better than at the present time.

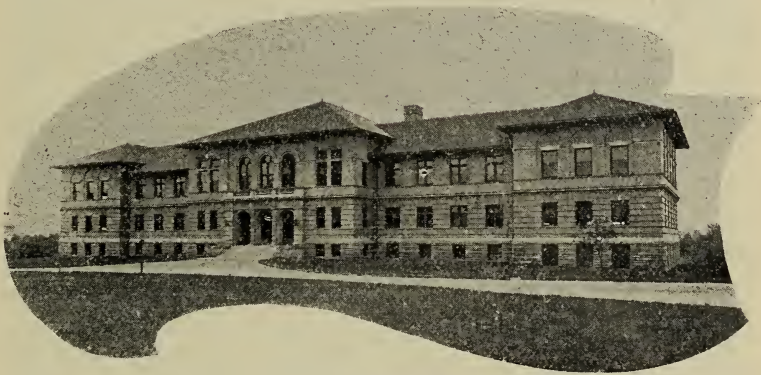
The work in butter and cheese making and testing milk as well as the lectures in dairying and the chemistry of milk and upon the feeding, breeding, judging, and management of cattle, will be given in Townshend Hall, erected and equipped at a cost of about \$100,000. Townshend Hall is 260 feet long and varies in width from 64 to 78 feet. Its size is best comprehended from the statement that it is more than one-eighth of a mile around the building.

The Dairy Department or Laboratory occupies six thousand square feet of floor space on the ground floor, not including bath room, locker room, toilet room and class room. The Dairy Department

proper consists of a butter making room, cheese making room, bottling and sterilizing room, receiving room, store room, wash room, refrigerator room and two cheese curing rooms. One of these cheese curing rooms is specially insulated and is provided with refrigerating coils as well as thermostat for controlling temperature so that the light and moisture and the temperature can be under control. The idea of this room is to determine what are the proper conditions for curing cheese.

No more convenient or better equipped suite of rooms can be found any-

and creamery practice is kept constantly before the student. But the work in the laboratory is not all of the course. Thorough instruction is given in the latest and most improved methods of handling the milk from the weigh can to the finished product, and on the construction and operation of creameries, cheese factories, dairies and milk depots; the chemistry of milk, butter and cheese; bacteriology in its relation to milk and its products; the theory and practice of the generation and use of steam, and care of boilers and engines; diseases of cattle, and methods of treatment; history, adaptation,



TOWNSHEND HALL.

where in America for the purpose than are found in this building.

In this course a considerable part of the time is given to the laboratory or dairy room practice. This consists in testing milk as to purity, contents of butter fat, the use and care of centrifugal separators of different makes and other creamery and dairy devices, the making of butter and cheese by the most improved methods. In a word, all the essential operations of the creamery, factory, or home dairy, are repeatedly performed under the guidance and direction of the instructors until some degree of proficiency is attained.

Through all this work, however, the question why, and the importance of a reason for every step of the work in dairy

care and management of different breeds of dairy cattle.

#### ADVANTAGES OF DAIRY SCHOOL GRADUATES.

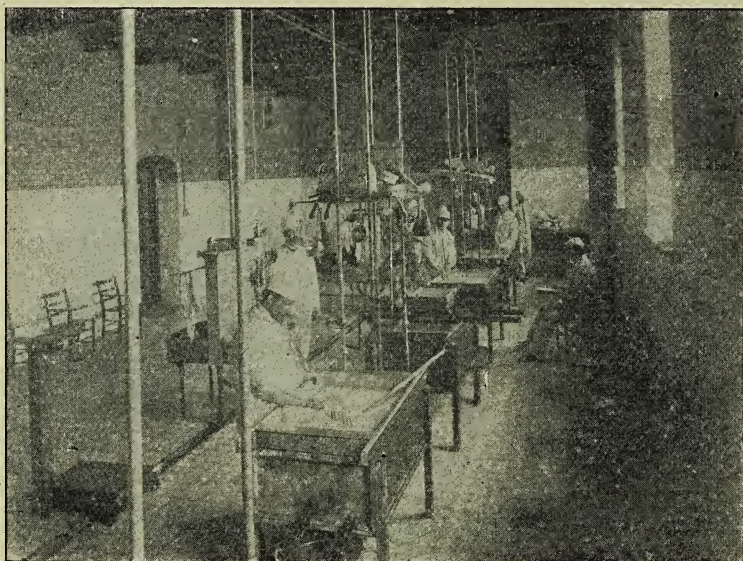
The benefits to be derived from such a course are numerous. In the first place, it learns one to think. The person who is able to understand the reasons for every step in his work is the one who can most successfully cope with any unexpected or unfavorable condition that may occur. Men who think and possess some original resources are the men that creamery and cheese factory managers are looking for. They realize that of two men who can turn out an equally good product, the one who can save one-tenth or even one one-hundredth per cent. more of the butter fat than the other, is



worth more to them. Special dairy training will give one independence. If the market for butter should be depressed the manufacture of cheese may be profitable for the time being. Again the dairy school tend to make the products of an individual factory more uniform by enabling the operator to better control the various processes of manufacture. It also tends to bring about more uniformity in the products of the community or the state. A lack of this uniformity often results in serious financial loss, as

### Social Settlements and Neighborhood Guilds.

Every college student has heard more or less about Social Settlements and has been more or less interested in them. Much has been said and written about the movement, both in England and America. The largest and most noted in England is that of Tyonbee Hall, London. The two largest and best known in America are the Hull House in Chi-



CHEESE-MAKING ROOM—TOWNSHEND HALL.

it is very hard to obtain a good permanent market for a variable product.

While it must be remembered that tact and skill and keen interest in the work are necessary to success, a short dairy course may be regarded as a good investment from a financial standpoint. "It is true," says a prominent dealer, "that there are butter makers doing fine work who never have attended a dairy school, but the road to success is shorter and surer through the dairy school than any other I know. It is my opinion that the time is not far distant when the dairy schools of this country will graduate all our fancy butter makers."

cago, and the University Settlement in Boston.

In the Social Settlements, educated and refined people take up their residence among the working classes, and endeavor by example and instruction, to help them to lead better, broader, and nobler lives, and to lift them above mere living, to a truer conception of life and its duties.

Practical and scientific training is given in various branches and the principles of political economy are inculcated. Men and women are taught to



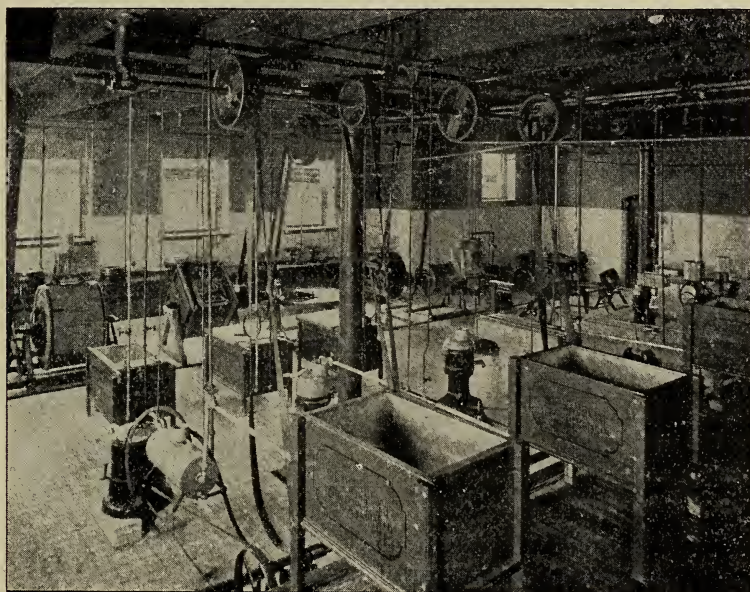
think and act from right motives. Children are taught gentleness and truthfulness and are provided with wholesome and airy playrooms in which to pass the hours they would otherwise spend on the streets and alleys. Boys and girls are provided with reading matter, clubs are formed for them, and instruction in manual training given.

Neighborhood Guilds are clubs formed by the inhabitants of a neighborhood, for the purpose of self-culture and useful-

taught them to beautify their homes and their lives by beautifying the things about them. The modern art movement began with Ruskin and his efforts have resulted in the modern Social Settlement plan.

Since Ruskin's time the movement has been advancing, until at present almost every institution of learning has its College or Social Settlement and Neighborhood Guild.

Our own Guild, on Goodale street, in



BUTTER-MAKING ROOM—TOWNSHEND HALL.

ness under the guidance of the Social Settlements.

John Ruskin instigated the movement when he gave one million two hundred thousand dollars to the establishment of workingmen's clubs and libraries. Five hundred thousand dollars he earned by his pen, the rest was his own private fortune. He bought several great libraries and distributed them among the clubs he had formed. He bought the finest of art treasures and gave them to the people in order that they might learn the meaning of true art and beauty. He

this city, is inadequate and plans are now under way for the erection of a modern building with all appliances and conveniences, with reading and club rooms, parlors, kindergarten, lecture room, baths, etc.

An endowment of ten thousand dollars was recently made to the Columbus Guild on condition that ten thousand more be obtained by subscription. This has been assured and the new building is now a certainty.

The Guild offers to its members a healthy environment and wholesome

recreation for the children, a better social life, free from the vices and temptations incident to street life, for the young people, and more elevating influences, and better social opportunities to all. Mothers' meetings are held and all topics that concern the making of a model home are discussed. Young girls are given instruction in cooking and housework, and boys are given work in manual training. Kindergarten is provided for the children and physical training is given to all.

Much good work is being accomplished by college people in this direction and many of our best and most intellectual people are prominent in the work.

Two young women from the department of Domestic Science instruct the classes in cooking every Thursday and Friday evening. The work consists of lectures on the economic value of foods, fuels, etc., and of lessons in practical cookery. The girls are taught neatness and cleanliness and are given a training which enables them to command good wages from the beginning and thus they are not compelled to work for small pay until they have learned by experience. Thus advantages are offered to all, and the general tendency is toward a higher and better ideal of life.

M. F. H.

### **Printed Labels for Living Plants.**

By Professor W. A. Kellerman.

The importance of a plain and easily legible label for living herbs, shrubs, and trees in conservatories, botanic gardens, and public parks has been underestimated. To the absence or illegibility of labels is largely attributable the ignorance, even on the part of cultured people, of trees and other plants. Our native plants are largely unknown to the people who have opportunity to see them almost daily.

I have had opportunity lately to observe whether many people see the labels to plants when they are in plain black type. I have kept no record of those who took notice of the names, but a very large proportion of visitors and passers-by have tarried to observe the name and to take another look at the plant itself. Knowing what it is called seemed to make the plant more attractive. Even very young children stop often to spell out the name. I have thus been led to appreciate the advantage of good labels to the people at large, and to students the benefit is equally great.

The pot labels used in greenhouses are extremely unsatisfactory and generally useless to the public. The writing is mostly done with a lead pencil and is quite generally illegible to the visitors. But the main objection is that the name is vertical instead of horizontal. Even the florist will usually pull out the label to read it. Labels to outdoor plants when written or painted on stakes, are sometimes vertical instead of horizontal, but always less easily read than when printed in plain broad-faced type. The large zinc strips nailed on trees in parks or other public grounds, on which are painted the names, are wholly unjustifiable, being unsightly and suggestive of advertisements of Battle Ax Plug or St. Jacob's Oil. Both for plants in the conservatory and out of doors I have adopted the printed card label which is very satisfactory and in the long run comparatively inexpensive.

I have devised a label holder which leaves nothing to be desired either in respect to the durability, sightliness, or expense. It consists of a piece of sheet brass, No. 24, cut the length of the card label, but one-half inch wider and the upper and lower edges are bent over (this is done with a tinner's brake), under which edges the card is slipped. It



is best to have ample space for insertion of the card, and turning down the edges at the ends securely clamps the same until a fresh card is to be inserted the following spring.

Three plans are adopted to support the labels; for pot plants in the conservatory, for outdoor herbs and shrubs, and for trees respectively. The first consists of a stiff wire, bent hairpin shape, soldered at the back of the brass holder, the two free ends being a few or several inches in length suitable for thrusting in the soil of pots of varying depths. These supports are bent backward slightly but uniformly at the lower edge of the label holder so as to give a proper bevel or angle to the card label.

The label holder for the outdoor plants consists of a steel rod five-eighths of an inch wide, one-eighth of an inch thick, and twenty inches in length. At the middle of this iron stake two bends are made, one very sharp (heating is required), so as to present a square shoulder allowing the use of a hammer or mallet in driving the stake to the proper depth, the shoulder being at the surface of the soil when the stake is placed is not observed by the visitor and it insures a uniform depth of the stake and height of the label. The uppermost portion (two inches) of the stake is bent backward so as to present the proper bevel or angle for easy reading of the label. It is on this part that the brass label holder is riveted with copper rivets (iron would discolor the label).

For trees the label holder is placed on the trunk about five feet from the ground. Two nails are used inserted in the two holes that were for the rivets. A very thin piece of mica is used to prevent contact of the card label and nail heads.

To protect the printed card labels two methods have been followed,—the first

now discarded, the second on the whole proving most satisfactory and economical. The first consisted in dipping the printed label in hot paraffine. The latter enters the card and also leaves a coating on the surface when removed from the melted material. It is a thorough protection against water and the label lasts a long time. Unfortunately, however, the paraffined label does not look new and fresh after this treatment and besides the dust is inclined to adhere to it too abundantly.

The other method adopted for protecting the printed label is simply the insertion of a thin piece of mica of the same size in front of the label. Though water enters at the ends behind the mica and dampens the label during every rain it is not at all to the detriment of the printing. It will be many months before the discoloration of the card is such that a fresh label need be inserted. Renewal once a year will be sufficient, though to change them both in early spring and early fall gives better satisfaction. I have two dozen cards of each label struck off when the printing is done and these, costing ten or twelve cents, will last twelve years. The size adopted for our greenhouse plants is one by two and a half inches and for outdoor plants two by four and one-half inches. The iron stakes are painted black (for looks) before riveting on the label holders. The mica should press close to the card label otherwise the moisture will condense and collect in visible quantities when the sun shines directly on it. The labels we use in the Botanical Department give the common name in large black type occupying one line, and below this in smaller type the scientific name is given, also the family to which the species belongs and the country in which it is indigenous.

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“Mud multiplies the miles to market.”



## **Fall Plowing vs. White Grubs and Wire Worms.**

### **FALL MEASURES FOR PREVENTION OF THE RAVAGES OF THE WHITE GRUB ANOTHER YEAR.**

What is commonly known as the white grub, or grub worm, is the young of the brown May beetle, or June bug, which occurs in such abundance in late May and June, and is not, as is often suggested, the young of the common Tumble bug. These May beetles deposit their eggs in June, usually about the roots of grass. These eggs hatch in about a month, and the young grubs, though very small, even immediately after hatching appear to be larger than the egg. They feed upon the roots of grass and by the first of November are about half an inch in length, having all the appearance of the full grown grub excepting in the matter of size. With the coming of cold weather, or perhaps more properly speaking, in late autumn, they go deeper into the ground, sometimes a foot or even more, and make for themselves small earthen cells by packing the earth more densely about their bodies, and in these cells pass the winter, coming upward in the spring, feeding upon the grass roots throughout the entire summer, and at the end of the second autumn they have reached about two-thirds of their ultimate dimensions. They now burrow into the ground, and again pass the winter in an earthen cell, coming to the surface again in the spring and feeding until the latter part of May, in this latitude, when they abandon the grass roots, burrow down into the ground, and again make an earthen cell within which they transform to the adult beetle.

It is possible that an occasional individual may appear above ground in the

fall, but the mass of them pass the winter in this condition and come to the surface as adults the following May. Thus it will be seen that they have fed during a portion of three years. The young of the insect is, by nature, a grass feeder, and, therefore, they are always more abundant in fields that have remained in grass for a long series of years. The major portion of their injury in cultivated fields occurs the first summer immediately following a series of grass crops.

From what has been stated of the life history of these pests the reason for this will be readily understood. Now, the insect cannot be kept off grass lands, nor is there any practical way of reaching these grubs under ground, and as they never get to the surface, their control by topical applications is not only difficult but practically impossible. As yet, we have found but one practical way of dealing with these pests, and while that is not infallible, it seems to prove effective in the majority of cases. This consists in the fall plowing of grass lands as a preparation for the grain crop the following year. While early fall plowing is known to be often effective, it is quite probable that late fall or winter plowing is much more dependable. The reason for this is that after the grubs have constructed their winter quarters they are probably too stupid to construct others. If then the ground is broken, the grubs within their winter quarters are either thrown up to the action of continued freezing and thawing, or, if not thrown up, are exposed to the more direct effects of rain and frost, and thus killed by the winter weather. That this method is effective in the majority of cases there can be hardly a doubt. During the present year the Ohio Agricultural Experiment Station has been in receipt of a number of letters stating that where portion of a field which, for some years, had been de-

voted to meadow or pasture, was plowed in the fall, and the remainder in the spring, the fall plowed portion escaped injury during the past summer, while the spring plowed portion suffered very severely.

A concensus of all the evidence obtained up to date, indicates that fall plowing is the most reliable and profitable method, known at present, for preventing the ravages of the white grub.

#### FALL TREATMENT OF GRASS LANDS TO PREVENT THE RAVAGES OF WIRE WORMS.

The parent of the wire worm is an entirely different insect from that of the white grub. In this case, the fully developed insect being the slender, brownish beetles, known as snapping beetles on account of their habit, when placed upon their backs, of throwing themselves into the air with a slight snap and turning over and alighting upon their feet. Their life history is very much the same as that of the white grub. These are also grass feeding insects, but while the white grub is more usually found upon higher lands, which the female seems to select for a place to deposit her eggs, the snapping beetles, or skip-jacks, seem to prefer the lower, cooler and damper lands. It is for this reason that the lower lands are more often affected by this pest, and it frequently occurs that the patches of black soil among clay will be more especially subject to infestation. While it would seem that the harder and more compact body of the wire worm would be less susceptible to climatic influences, nevertheless, we find no more practical prevention of the occurrence of this pest than the fall plowing of sod lands, and, as with the white grub, it is quite probable that late fall or winter plowing will be preferable. While this does not, in all cases, insure absolute freedom from the attacks of these in-

sects, there seems a stronger probability of their ravages another year being prevented in this way than by any other known to us.—Press Bulletin, Ohio Experiment Station.

#### Wheat Raising in Medina County.

As wheat seeding is still fresh in the mind of nearly every farmer in Ohio, a word as to how this crop is grown in one of the banner counties of the State, seems not out of place.

According to the agricultural census of 1890, the average yield per acre for the State was 15.71 bushels, while Medina county's yield was placed at 21.36 bushels per acre, exceeded only by Summit county, which had a yield of 21.5 bushels per acre. This yield will undoubtedly be much larger in the census of 1900, as we are certainly learning how to better cope with the destructive forces of nature.

Our soil seems naturally adapted to wheat growing, as it makes a typical seed-bed, when properly prepared, which will withstand the spring freezes.

The wheat in this section is grown largely on oat stubble so that plowing is necessary. The plow is usually followed by the roller, which we consider one of the most important implements used in wheat seeding; it answers a double purpose, (1) conserving soil moisture which is usually very important at that time of the year, and (2) pulverizing and compacting the soil so that the young roots can get a tighter grip, thus protecting themselves from the heavy freezes.

We like to have the plowing and rolling done as early as possible, so that the oats that will naturally have shelled out in harvesting and hauling, will have a chance to grow before it is time to sow the wheat, at which time they may be easily killed by a thorough harrowing with a disc or spring-tooth harrow.

We aim to have the soil mellow down deep, yet compact, with enough fine loose earth on top to cover nicely after the drill, sowing from about the 15th to 20th of September.

The seed we run through a fanning mill over a coarse sieve so as to take out not only foul seed, cut wheat, etc., but also the small grains. Our object is to sow nothing but what will produce strong and healthy plants that will be capable of standing a hard winter. We find it best to sow about one and one-half bushels per acre, seldom treating the seed for smut, as it does not trouble us to any appreciable extent.

Now as to fertilizer, nearly everyone at the present time uses more or less commercial fertilizer on their wheat land, but what kind to use is the problem which puzzles our farmers most. Some are still of the opinion that the fertilizer which costs the most money is surely the best for their soil. On our own farm, however, this has proven not to be the case. Repeated experiments with complete fertilizers have shown no increase in the crop over a purely acid goods and costing nearly double. We try, however, to cover our corn ground with barnyard manure, which probably is not all exhausted by the time the wheat is sown, and then what manure is made during the summer is put on the poorer places, so that with the growing of clover we keep up the percentage of nitrogen in the soil without the use of commercial nitrogen.

Well can I remember when we considered twenty bushels per acre an extra good crop, but now with a more thorough system of tile drainage, the use of commercial fertilizer and improved implements of tillage and harvesting, we have materially raised our standard. The past year with the use of two hundred pounds per acre of 14 per cent. to 16 per

cent. acid phosphate, costing \$14 per ton, our yield was thirty-five bushels per acre by weight, while some yields were reported as high as forty-five bushels per acre.

A. W. NETTLETON.

### **The Western Movement of Our Wheat Areas.**

The truth of the saying that, "Westward the Star of Empire Takes Its Way," has been manifest in many lines of progress during the last half century. One of the most striking evidences of this great westward movement has been the gradual shifting of the center of our wheat-producing area towards the west and northwest. In 1849 the central line of wheat production in the United States ran north and south through Eastern Ohio; in 1859 through Eastern Indiana; in 1869 through Eastern Illinois, and in 1879 through Central Illinois, and in 1889 it was west of the Mississippi river. Thirty years ago New York, Pennsylvania and Ohio held prominent places among the wheat producing states, and the greater part of our wheat was then raised just south of the chain of Great Lakes. But by the middle of the eighties all this was changed, and a large proportion of the surplus wheat of the United States was harvested in the far northwest, principally in Minnesota and the Dakotas. In the meantime Pennsylvania, Ohio, Indiana, Illinois, Michigan and Wisconsin have steadily declined as wheat producers, as is proven by figures from the census reports of 1879 and 1889.

Let us briefly inquire into some of the reasons for this most significant fact in the history of wheat production in the United States. The valley of the Red River of the North has been the vast arena for the recent growth of wheat.



This region has become what it is mainly for three reasons: First, the climate and character of the soil, which is admirably adapted to wheat culture; second, the cheapness of the land, which has come to its present owners generally by direct purchase from the railroad companies, the latter having gotten possession of it from the government as a bonus for the construction and operation of their lines; third, the ability and enterprise of the "Wheat Kings," together with the invention and introduction of efficient machinery which renders production cheap. Everything in this region is on a magnificent scale. The smallest implement on the farms is the plow, and from this to the elevator every resource in machinery is used to minimize the amount of human energy necessary.

The average bonanza farmer, as he is called, operates a farm of 3000 to 10,000 acres, while many smaller farms have 600 to 2000 acres under cultivation, the value of which is now about \$25.00 per acre.

The cost of raising a bushel of wheat in the west has been figured at 30 cents and the average yield at 19 bushels per acre. This then puts the cost of an acre at \$5.70. Accepting the average selling price of wheat at 55 cents per bushel, we find that the income from an acre is \$10.45. This would seem to leave a net profit of \$4.75 per acre but from this there must be other deductions. Allowing 45 cents as interest on the operating expenses, and \$1.80 as interest on the capital invested, we find the real net profits are only about \$2.50 per acre, or less than 8 per cent. on the total investment. This is wheat raising on a large scale which the average Ohio farmer cannot undertake, because of the different conditions of climate and rainfall, and the higher value of land, and not because he lacks ability and enter-

prise. Another phase of the subject is the risk and uncertainty of success that is attendant upon this as upon all other great business enterprises. The capital invested is so great that one or two seasons with unfavorable conditions would involve immense losses and perhaps ruin to the bonanza farmer.

And as there is no diversity of crops raised in that section, the failure of one means a total failure for the year. The ordinary small farmer, after all, I believe, is more independent, better contented, and has a surer chance and assurance of making all ends meet than the great "Wheat Kings" of the west.

The wheat farmer of today in the rich Red River valley does not seem to be anyways disturbed by thoughts about the depletion of the soil; with him sufficient unto the day is the evil thereof, and as long as his crops continue to grow and produce a fair average yield, he is happy and contented. But what of the farmer of tomorrow who is to till the same soil?

W. F. T.

### Book Reviews.

"The A B C of Bee Culture": the 1899 edition revised by E. R. Root. Illustrated. Cloth; pp. 475. The A. I. Root Co., Medina, Ohio. Price post-paid, \$1.20; by freight or express with other goods, \$1.00.

The previous editions of this book have had a remarkable sale, and a thousand copies of the latest edition were sold before it was out of the press. This edition reaches the 67,000 mark and is in many respects much superior to any previous one. A large number of subjects have been rewritten, and also a large number appear which did not have a place in the older books. The new book, like the old, is arranged on the plan of a cyclopedia, for ready reference; and, in addition, bold headlines indicat-

ing the sub-heads are found on nearly every page. As the name indicates the book is intended principally for beginners, and in a clear, simple manner covers every subject necessary for the successful management of bees. Every subject is discussed from an impartial standpoint, leaving the intelligent reader to select such parts as are especially adapted to his surroundings. The most valuable feature of the work is that every part of it has been subjected to a practical test in the apiary of the authors before it has been either condemned or recommended. It is the fullest and most up-to-date bee-book which has come to our notice.

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"The Political Economy of Natural Law," by Henry Wood. Pp. 305. Lee & Shepard, Boston. Price; cloth \$1.25; paper 50 cents.

This book has received a profusion of commendatory notices from the press in all sections of the country. It is written in a clear style and is in every way an entertaining, and original treatment of the subject. The object of the author is stated in the preface as follows: "The general purpose of this volume is the outlining of a political economy which is natural and practical, rather than artificial and theoretical. While independent of professional methods, it aims to be usefully suggestive to the popular mind. As a treatise it is not scholastic, statistical, or historical, but rather an earnest search for inherent laws and principles."

It is interesting and instructive and will be welcomed by all who wish to become well informed on the leading topics of the day, in their true relation to society.

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"Trusts and How to Deal with Them," by Henry Wallace. Paper; pp. 165. The Wallace Publishing Company, Des Moines, Iowa. Price 35 cents.

This is an interesting little book and in a clear, forceful manner treats of the various steps in the business world leading up to the formation of trusts,

pointing out the dangers arising from them, and suggesting means by which they should be controlled. The writer takes the ground that trusts are a necessary evil in a country of such magnitude as the United States and under modern conditions, but unless rigidly controlled they will prove an oppressive master rather than a servant of the people. It is a book intended to stimulate thought and is well worth the reading.

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"The Mother of Trusts," by Jesse Hagedest. Cloth; pp. 262. The Hudson-Kimberly Company, Kansas City, Mo.

The author considers the railroads as the Mother of Trusts, and seeks to show the true relation of railroads to the farmer. By statistics, gathered from reliable sources, the real values of the railroads as claimed by their officials, are shown to be false, making the burden of taxation unequal, and falling most heavily on the producers of the country. United States ownership, State control and State ownership of the railroads are presented for the consideration of the reader. The value of the book will be found in the reliable statistics upon the subject, rather than as a book for general reading.

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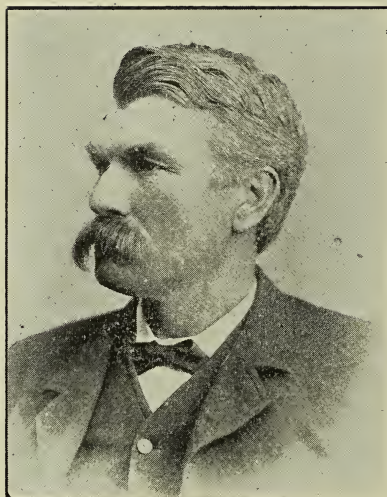
"About the Weather," by Mark W. Harrington. Cloth; 16 mo.; pp. 246. D. Appleton Co., New York. Price 60 cents.

This book, like all others of the Appleton home reading series, is written in a popular and fascinating style, which, as far as possible, omits all technical terms and appeals at once to the general reader. The first chapters treat of man's conquest with the weather and shows how completely almost every kind of human activity is influenced by it. Then follows an extremely interesting discussion of the cause and effect of the various phenomena of the atmosphere.

The book is neatly and attractively bound, well illustrated with drawings and reproductions of actual photographs, and should be read by all who wish to obtain a good general knowledge of the laws of the weather.







COLONEL J. H. BRIGHAM,  
Assistant Secretary of Agriculture.

[See page 89.]